

## **Energy Demand Analysis of Instant Noodles Processing Plants of Nepal**

**Abstract**— There is a large potential of energy saving in the noodles industries as it is still in the traditional state. Nepal produced 103.6 thousand metric tons of Noodles in 2017 with about the total capacity 160 thousand metric tons. The average production growth rate for the past ten years is around 5.6%. In noodles industries, boiler consumes about 61% of the energy with motor drives consuming about 23% followed by process heat with 10% of the energy. Rice husk is used as the fuel in most boilers which provided about 90% of the thermal energy with around 10% being derived from the electricity. After modeling in LEAP, about 176.77 thousand GJ of energy is being used with the prediction of about 363.84 thousand GJ of energy being demanded in 2030 under normal growth rate of 5.6%. Creating different scenarios with the industrial value addition for manufacturing sector, it was found under low growth rate of 3%, 256.59 thousand GJ of energy will be required with 817.31 thousand GJ of energy being demanded in high growth rate of 11.5%. With the various efficiency measures in accordance to sustainable development goals being implemented, the energy demand will be 261.43 thousand GJ, 199.58 thousand GJ and 641.52 thousand GJ under normal, low and high growth efficient scenarios. This accounts for about 21.6 thousand GJ of electrical and 83.85 thousand GJ of thermal energy being saved. Under low growth 29.15 thousand GJ electrical energy and 60.32 thousand GJ thermal energy can be saved with 18.47 thousand GJ of electrical energy and 97.47 thousand GJ of thermal energy being saved from high growth scenario.

**Keywords:** *Energy Modeling, Energy Demand, LEAP, Instant Noodles Industry.*